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ABSTRACT

This trainer's guide is intended to assist supervisors of work-based career training projects in teaching students how to sample and analyze soil to determine its pH value. The guide is one in a series of core curriculum modules that is intended for use in combination on- and off-the-job programs to familiarize youth with the skills, knowledge, and attitudes necessary for success in the workplace. Included in the guide are the following components: project information, a summary of the content and approach of the guide, supervisor's notes, background information, lists of tasks and core skills, an action plan that includes suggested learning activities, supervisor and trainee review sheets, and an assessment form. (KC)

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Youth Training Scheme

CORE EXEMPLAR WORK BASED PROJECT

ED265324

pH testing

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The Further Education Staff College
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ASSESSMENT OF CORE SKILLS

This series of projects contains a number of different formats for recording assessment of core skills. These formats are offered for experimental purposes, none is proven as the 'best' method. All are based on the principle that feedback to trainees is a necessary part of the learning process and that such feedback should include information on core skill development.

Further work is being carried out on the methods of assessing achievement of core skills in work-based learning and of how to log such achievement on a record which trainees can take away from YTS. Some of the results of this work will be included in later MSC/ESF Core Skills Project publications.

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INTRODUCTION

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WHAT ARE WORK-BASED PROJECTS?

Work-based projects are learning materials which aim to make the most of all the possibilities for developing trainees' skills, knowledge and attitudes in the workplace. They build upon everyday workplace tasks to provide experience of the whole range of YTS learning opportunities.

The projects in this series have been tested with managing agents as part of the YTS Core Project, which is jointly financed by MSC and the European Social Fund. In some cases managing agents will be able to use the projects as they are. In others they will need to be adapted to the circumstances of a particular workplace or to the aims of a particular scheme. Some managing agents will prefer to produce their own projects. For such cases these examples aim to demonstrate some principles of good design in work-based learning materials. These principles are:

To encourage trainees to learn by doing
To make the most of all the experiences which are available to trainees in the workplaces.
To start from a real task which is seen as relevant by all parties involved — trainees, workplace supervisors, trainers and off-the-job tutors.
To help trainees see the relationships between things learnt on- and off-the-job.
To base the assessment of achievement upon trainees' actual performance in tasks.
To look for all the opportunities for learning which arise from a task and, in particular, to help trainees to develop the core skills. These skills, in number, communication, problem-solving and practical activities, are used in a wide variety of tasks and are essential if trainees are to achieve competence in those tasks*. They are the skills — of finding out information, planning how to do things, overcoming difficulties and so on — which help trainees to learn more quickly in new situations, either in the same workplace, in a different one, or in the world outside work.

Such skills are required naturally by the workplace tasks in these projects and, in requiring trainees to go beyond the task itself, the projects deliberately *add* to the range of core skills which are required in an everyday working situation. This is especially important for some of the skills of communication and problem-solving which trainees are often not given the opportunity to exercise in work experience.

These principles can be incorporated in projects for all placements and for trainees of all ability levels. Although the projects in this series follow a common format, there is no single 'best' style. Nor is any special expertise in writing necessary. Good work-based projects can be produced by anyone who is determined to help trainees to exploit all of the potential for learning in work experience.

*A technical manual 'Core Skills in YTS' is currently available from MSC. It is supported by a short introductory leaflet and a practitioner's guide for supervisors. A separate manual is available on computer literacy/information technology.

PROJECT INFORMATION

This particular project enables the trainee to find out a great deal about soil analysis and fertilisation. pH testing is a necessary task which should be undertaken by all farmers and as a result a decision has to be taken regarding the application of fertilisers. In addition it helps the trainee to develop the skills of planning, and of recording and interpreting information. The trainee has to provide information in writing and find out information from other people. The successful completion of the project will also encourage the trainee to find out a great deal of other information relating to the cultivation of crops in general.

The project contains many of the essential features of a practical exercise with the necessity for gathering information, planning a course of action, carrying it out, interpreting the results and recommending a course of action. Thus, although the project is designed for use on a farm and has a specifically agricultural form, its principles could transfer to any situation in which testing has to take place.

Lastly, this project will help the trainee to feel part of the team of workpeople on the farm and also help to develop a sense of responsibility and a feeling that the trainee will be able to influence decisions even if only in a minor way.

SUMMARY

The trainee is asked to sample the soil in a particular field and either analyse it him/nerself using a kit or arrange for it to be analysed in order to determine the pH value.

SUPERVISOR'S NOTES

INTRODUCTION

This work based project is designed to focus the trainee upon the CORE SKILL areas of: number; communication; practical skills, and problem-solving. Wherever possible, it is also designed to provide learning opportunities to improve personal effectiveness; to provide wider knowledge of the world of work and elsewhere; and to furnish the trainee with skills which can be transferred to other situations.

The essence of the work based project is that people learn more quickly and effectively by actually doing something.

The following notes are designed to help you, your staff, and the trainee, so that the project can be carried out with a minimum of disruption to normal work activity.

1. Where relevant, plea advise other staff that the trainee will be doing the projec

2. Please ensure that the trainee has read the project details and understands what is required;

3. Please ensure that the trainee is aware of any aspects of safety, hygiene or security which might touch upon the project;

4. Please ensure that the trainee appreciates that good planning will make the task easier. Wherever possible, and before the project starts, the trainee should be encouraged to take responsibility for his/her learning by estimating time, deciding on equipment and materials, identifying possible hazards and other problems, and generally "thinking the project through".

5. Upon completion of the project discuss with the trainee the activities he/she has been engaged in. What problems were there? What has he/she learnt? Would he/she tackle the project differently?

Encourage the trainee to complete the trainee's review page.

For this particular project, the following information may be useful:

TASK 1

The trainee may need help in finding the source material required. Resist the temptation to get the information for him/her. It is part of the aim of the assignment for the trainee to find things out unaided.

TASK 3

Again, it is important for the trainee to track down the appropriate tool. He/she must find out as much as possible for himself.

TASK 4

The trainee should be able to work out for him/herself which are the areas suitable for sampling. For example, he should avoid such sites as old manure and fertiliser heaps, headlands, near trees, gateways or areas where stock shelter. Some guidance will, however, be necessary.

TASK 5

The trainee may need help in using the pH kit. However, these are fairly self-explanatory and you should allow him/her to work it out for him/herself fore giving advice.

Names

TRAINEE .....

SUPERVISOR .....

TUTOR .....

Times

Please fill in the table below. This will show the time you spend on completing this project. The first column has been filled in as an example Make another table if you need more space.

DATE	16/6			
START	2.30			
FINISH	4.00			
TIME SPENT (HOURS)	1½			

BACKGROUND

Farmers now accept soil analysis as an essential aid to modern farming because without it the use of fertilisers and lime is a very hit and miss affair. Nutrients are required by all plants to achieve optimum growth. Frequently soil reserves of nitrogen, phosphorus, potassium and magnesium are insufficient to maintain an adequate supply for the plant. Thus additional amounts are usually required to fertilise the soil. Lime is also required on many soils to reduce soil acidity. The acidity or alkalinity of soil is measured on a pH scale and a satisfactory soil pH must be maintained by the use of lime to ensure optimum crop growth. The satisfactory level for most crops is pH 6.5 on mineral soils and pH 5.8 on peats.

SITUATION

In the fields.

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PURPOSES

This project will help you to find out a great deal about soil analysis and chemical testing. You will learn about how to determine the pH level of a particular field or fields and this will enable you to recommend a certain course of action to a farmer.

Doing this project will enable you to learn more about agriculture. It will also help you to develop your CORE SKILLS (number, communication, problem-solving, and practical skills). Increasing your abilities in these skills will make it easier for you to change jobs and retrain when the need arises.

The tasks you are asked to do are outlined below, together with the most important CORE SKILLS that they contain. When you have finished each task, ask your supervisor to tell you how well she/he thought you did in the task, and record this on the Assessment Form near the back of this Project. This record will be needed to complete your Certificate at the end of your YTS year.

WBP TASK	ACTIVITY	CORE SKILL
1.	Find out information about soil analysis.	Find out information by speaking to other people. 6.1
		Find out information from written sources. 6.2
2.	Discuss when and where to take the samples.	Discuss with other people in the workplace how things are to be done. 8.6
3.	Get the correct tool needed to take soil samples.	Identify or locate, tools, equipment, machinery, materials, etc. 12.2
	Check that you are using the tool correctly.	Check that he/she is performing a task to standard. 11.1
4.	Decide upon the most suitable areas of the field for testing and plan how you are going to organise the task.	Decide between alternative courses of action. 10.3
	Take soil samples.	Operate and control or adjust tools, equipment, machinery or instruments. 13.4

5.	Analyse samples and interpret results.	Interpret written instructions.	6.5
		Interpret numerical data or symbols in written or printed form.	2.1
	Decide upon the action that should be taken.	Decide when action is required.	10.1
		Provide information by speaking to other people in the workplace.	7.1
6.	Make up your project report.	Provide information in writing, and by means of tables and diagrams.	7.3

Each CORE SKILL is identified by number in the PRACTITIONER'S GUIDE to the YTS CORE, which contains advice and guidance on what CORE SKILLS are and their uses. The numbers are included here for ease of reference.

ACTION PLAN

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Read and discuss this assignment with your tutor/supervisor before starting work on it. Great attention must be paid to accuracy.

TASK 1

Find out all you can about soil analysis. Consult your tutor/supervisor. It will also be necessary to read the ADAS leaflet 655 (amended 1983) and ADAS Booklet 2082 which you will find very helpful. You can get these by writing to ADAS or possibly by going to your local library. In addition a basic farming textbook will give you background information for example, Fream's Elements of Agriculture.

TASK 2

Discuss with the farmer or supervisor which field or fields require soil analysis and when would be the best time to take samples.

TASK 3

The value of soil analysis depends on how carefully the sample is taken to ensure that it is representative. Hence it is important to use the proper tool whenever possible. Your supervisor or the farmer will advise you. Alternatively, find out for yourself by referring to your pamphlets and books. You must get the tool that you need and make sure it is in good working order. Practise using the tool before taking the samples you are going to analyse. Check with the farmer or an experienced worker that you are using the tool correctly.

TASK 4

You should now decide on suitable areas for sampling and try to give reasons for your choice. You should then discuss your intentions fully with your supervisor or the farmer, who may wish to advise you in the light of his/her knowledge and experience.

Plan carefully how you are going to take the samples. Make sure you have all the tools and equipment you need before you start.

Take the samples, put them into containers and label them.

TASK 5

Analyse the samples yourself using a sampling pH kit. Read the instructions and follow them carefully. Record the results which will give you a pH reading for each sample.

It is important to interpret the results of the analysis carefully. You will now be able to advise the farmer on whether the fields you have tested require an application of lime.

TASK 6

Write up details of everything you have done and put them into a folder. Start by outlining the reasons for the sampling, describe what you have done and include a table of results.

It is very important to think about what you have done and to recommend what should happen next.

TRAINEE REVIEW

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PLEASE COMPLETE THIS FORM IN AS MUCH DETAIL AS POSSIBLE AND DISCUSS IT WITH YOUR SUPERVISOR AND TUTOR.

1. Were you offered a selection of Projects to choose from? If so, why did you choose this one?

2. What did you think of it? Was it - easy, hard, interesting or boring?

3. What did you learn? (Look at the list of Purposes).

4. Did you learn something which was not on the list of Purposes?

5. Did you need help with any particular part of the Project? What kind of help did you get?

6. Were there any words in the Project that you did not understand? Please list them.

7. Do you think you could use what you learned in another job, or outside work?

8. Has this Project helped you decide whether you need further training in certain areas?

SUPERVISOR REVIEW

Please refer to Supervisor's Notes.

Please read the questions included under Trainee Review.

Please complete the Assessment Form and discuss your assessment with the trainee before initialling it to show that you both agree with the assessment.

COMMENTS:

ASSESSMENT

explanatory notes

In completing this wbp the trainee has the opportunity to demonstrate competence in the CORE SKILLS listed on the attached form.

The first two columns list the wbp Tasks and the CORE SKILLS which occur within them.

You are asked to assess the trainee's competence in these CORE SKILLS according to the amount of support from you that the trainee needed, for example:-

1) if a trainee is asked to "find information from written sources" and you provide the trainee with all the sources of that information, together with telling the trainee where to look in any particular source, then that trainee is obviously being given much more support in finding that information than a trainee who identifies the sources and extracts correct information unaided;

2) if a trainee is asked to undertake a task which involves "noticing the needs of customers or clients", and needs considerable prompting to approach a customer, then that trainee is obviously being given more support than a trainee who takes the initiative in approaching the customer.

To be regarded as fully competent in the CORE SKILLS, the trainee should need to be offered no more support than you would normally give to any experienced worker.

Most of the time job competence and CORE SKILLS competence are likely to be the same, but sometimes this may not be so. For instance, a trainee involved in machining a particular component may be competent so far as planning the work is concerned (a CORE SKILL), but may not have reached experienced worker speeds (an occupational skill).

Please tick the appropriate box and initial in the space provided, after you have discussed your assessment with the trainee and agreed any further training required.

ASSESSMENT FORM

PROJECT TITLE PH TESTING WBP NO M/02/009 DATE

TRAINEE'S NAME SUPERVISOR'S NAME

WBP TASK NO	CORE SKILLS ASSESSED	NEEDED A LOT OF ASSISTANCE	NEEDED SOME ASSISTANCE	LITTLE OR NO ASSISTANCE		COMMENTS INCLUDING NO OPPORTUNITY	AGREED INITIALS	
				NEEDS MORE PRACTICE	COMPETENT		TRAINEE	SUPERVISOR
1	6.1 Find out information by speaking to other people.							
1	6.2 Find out information from written sources.							
2	8.6 Discuss with other people in the workplace how things are to be done.							
3	2.2 Identify or locate tools,equipment machinery, materials stock or items.							
3	11.2 Monitor a process or activity.							
4	10.3 Decide between alternative courses of action.							
4	13.4 Operate and control or adjust tools equipment, machinery or instruments							
5	6,5 Interpret written instructions.							

ASSESSMENT FORM
continued.

WBP TASK NO	CORE SKILLS ASSESSED	NEEDED A LOT OF ASSISTANCE	NEEDED SOME ASSISTANCE	LITTLE OR NO ASSISTANCE		COMMENTS: INCLUDING NO OPPORTUNITY	AGREED INITIALS	
				NEEDS MORE PRACTICE	COMPETENT		TRAINEE	SUPERVISOR
5	2.1 Interpret numerical data or symbols in written or printed form.							
5	10.1 Decide when action is required.							
5	7.1 Provide information by speaking to other people in the workplace.							
6	7.3 Provide information in writing, and by means of tables or diagrams.							